

REMARKS

By this Amendment, Applicants have rewritten claims 7, 12 and 13 in independent form.

Entry of this amendment under 37 CFR 1.116 is requested. Since the foregoing amendments merely rewrite claims in independent form, the amendments do not raise new issues requiring further consideration and/or search. Moreover, the foregoing amendments place the application in condition for allowance or, at least, in better form for consideration on appeal. Therefore, entry of these amendments under 37 CFR 1.116 is proper.

Claims 1-6 and 8-11 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 6,444,095 to Evans et al. Applicants again traverse this rejection and request reconsideration thereof.

The present invention relates to a method for regenerating a glycol solution containing water, hydrocarbons and dissolved salts. The method comprises the following stages:

a) expanding the solution so as to release hydrocarbons and to obtain a hydrocarbon-poor solution,

b) distilling in a distillation column the hydrocarbon-poor solution obtained in stage a) to obtain a glycol-enriched solution and a vapor comprising water and hydrocarbons,

c) placing under vacuum a first part of the glycol-enriched solution obtained in stage b) under a pressure below 90,000 Pa abs. to obtain vaporized water and a glycol solution comprising precipitated salts, and

d) separating the precipitated salts from the glycol solution obtained in stage c) to obtain precipitated salts and a salt-depleted glycol solution.

The Evans et al. patent relates to a process and system for recovering glycol from glycol and bromine mixtures produced from oil or natural gas wells. The process utilizes the system to remove salt and other solids as well as excess water leaving a glycol stream that can be reused as a hydrate inhibitor. The process begins by preheating a glycol/brine stream comprising approximately fifty percent (50%) glycol. The stream is then subjected to three evaporation cycles. The first evaporation cycle comprises introducing the preheated stream into a suppressed boiling point evaporator where the stream is heated under a constant pressure. The stream pressure is then dropped to cause a portion of the water contained in the stream to vaporize or flash. The flashing stream is then introduced into a separator vessel where the water vapor is separated from the remaining liquid stream. The water vapor is removed from the separator and condensed. The remaining liquid glycol/brine stream is then pumped from the separator vessel through a solids removal system where precipitated salts and solids are removed. These steps are repeated two additional times. Each time the remaining liquid stream becomes more concentrated with glycol until the finished product is approximately ninety percent (90%) glycol.

The Examiner states that the process of Evans differs from the claimed invention in that the Examiner apparently deems the Evans et al. patent to not disclose the step c) recited in Applicants' claim 1. However, the Examiner ignores the other differences between the presently claimed invention and the process described in Evans et al. According to Evans et al. water is separated from the glycol mixture by heating and expansion of the mixture, whereas, according to the

present invention, the mixture is distilled.

In responding to Applicants' previous arguments, the Examiner takes issue with Applicants' argument that, according to Evans et al., water is separated from the glycol mixture by heating and expansion of the mixture, whereas, according to the present invention, the mixture is distilled. The Examiner continues to allege that the Evans et al. patent discloses that water is separated by distillation, the Examiner referring to the abstract and column 1, lines 54-64 of Evans. However, contrary to the Examiner's assertion, neither the abstract nor column 1, lines 54-64 of Evans et al. discloses separating water from glycol by distillation. The disclosure at column 1, line 55, to column 2, line 30 and Figure 1 of Evans et al. describes a prior art system. See, column 1, lines 55-58 and column 3, lines 27-29 of Evans et al. However, the Evans et al. patent clearly teaches away from distillation in that it explains that distillation is "extremely energy intense," that "distillation column requires a reboiler to provide the heat necessary to drive off the water vapor" and that "the heat duty required by the reboiler 16 is significant. See, column 2, lines 13-19 of Evans et al.

The Evans et al. patent suggests a solution less energy intensive than the prior art. See, column 2, lines 23-27 of Evans et al. Therefore, the Evans et al. document in no way discloses and would not have suggested the method presently claimed, including step b) of the present invention. In fact, the critique of the distillation step of the prior art set forth in Evans et al. teaches away from using distillation for separating water from glycol because of the energy costs of distillation.

Further, contrary to the Examiner's assertion, the abstract of Evans et al. does not mention a step of distillation. The abstract discloses performing three evaporation cycles, each cycle comprising heating without boiling ("introducing the preheated stream into a suppressed blowing point evaporator where the stream is

heated under a constant pressure”) followed by an expansion (“the stream pressure is then dropped to cause a portion of the water contained in the stream to vaporize”). This teaching of the abstract of Evans et al. is detailed at column 4, lines 42 to column 5, line 28 of the Evans et al. specification. Distillation cannot be compared with a succession of heating and expansion. Distillation is performed at constant pressure with the need to supply heat to the stream, whereas the separation by heating and expansions is obtained during the pressure drop.

Accordingly, the Evans et al. patent does not disclose the four steps set forth in claim 1 of this subject application.

Further, according to the present invention, only a fraction of the distilled solution of glycol is placed under the vacuum, then subjected to a separation steps for eliminating the precipitated salt. The precipitated salt eliminated from a fraction of solution of glycol allows to reduce the concentration of salt in the glycol in order to perform a distillation at atmospheric pressure mixture of brine and glycol; according to the process of Evans et al., the whole stream of expanded mixture must be subjected to the solid removal system 60, 90 or 110 in order to eliminate the precipitated salt. Therefore, Evans et al. would not have suggested placing a faction of the mixture under vacuum.

For the foregoing reasons, the Evans et al. patent does not disclose and would not have suggested the presently claimed invention.

In view of the foregoing amendments and remarks, entry of this amendment and favorable reconsideration and allowance of all of the claims now in the application are requested.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry,

Stout & Kraus Deposit Account No. 01-2135 (Case: 612.43222X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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